

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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In re Application of: Helmut Brehm  
Serial No. 10/069,278  
Filed: June 11, 2002  
Confirmation No. 7874

Examiner: Asinovsky, O.  
Art Unit 1711

MAR 22 2004

OFFICIAL

For: **A POLYMER COMPOSITION AND A PROCESS FOR PRODUCING SAME**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**PRELIMINARY AMENDMENT AND REMARKS**

Sir:

In response to the Final Office Action mailed May 13, 2003 and the Request to Continue Examination filed on July 31, 2003, Applicant hereby submits the following remarks and amendments of the claims. If any additional fees for this response are required, the Commissioner is hereby authorized to charge them to Deposit Account No. 50-2190.

**In the Claims:**

1. (Previously Amended) A powdered, crosslinked polymer composition for absorbing aqueous or serous fluids, as well as blood comprising:
  - a) 55 - 99.9 wt.-% of at least one polymerized, ethylenically unsaturated, polymerizable monomer which contains acid groups neutralized to at least 25 mole-%;
  - b) 0 - 40 wt.-% of polymerized, unsaturated monomers copolymerizable with a);
  - c) 0.01 - 5.0 wt.-% of one or more crosslinking agents;

d) 0 - 30 wt.-% of a water-soluble polymer, the weight amounts a) through d) being based on anhydrous polymer composition, and the sum of these components always being 100 wt.%, wherein the powdered crosslinked polymer composition is made by continuous polymerization process wherein a parameter of the continuous polymerization process is varied by increasing and decreasing the parameter in a recurring pattern, during the polymerization process.

2. (Previously Amended) The polymer compositions according to Claim 1, characterized in that said recurring pattern is an oscillation about a mean value which can be selected at random.

3. (Previously Amended) The polymer composition of Claim 2, wherein the oscillation is selected from the group consisting of harmonic or anharmonic.

4. (Withdrawn)

5. (Previously Amended) The polymer compositions according to Claim 1 characterized in that the polymerization is effected on a moving support.

6. (Previously Amended) The polymer compositions according to Claim 1 characterized in that co- or terpolymer compositions are concerned.

7. (Previously Amended) The polymer compositions according to Claim 1 characterized in that the monomers containing acid groups are acrylic acid, methacrylic acid and/or 2-acrylamido-2-methylpropanesulfonic acid.

8. (Previously Amended) The polymer compositions according to Claim 1 characterized in that the monomers containing acid groups are neutralized to at least 50 mole-%.

9. (Previously Amended) The polymer compositions according to Claim 1 characterized in that the only monomer containing acid groups is acrylic acid neutralized to 50-80 mole-%.

10. (Previously Amended) The polymer compositions according to Claim 1 characterized in that water-soluble polymers according to d) are employed at concentrations of 1-5 wt.-%.

11. (Previously Amended) The polymer compositions according to Claim 1 characterized in that the water-soluble polymers are starch and/or polyvinyl alcohol.

12. (Previously Amended) The polymer compositions according to Claim 1 characterized in that the compositions are mixed with 0.05 - 3 wt.-% of a compound capable of reacting with at least two carboxyl groups and heated to 150-250°C.

13. (Previously Amended) A process for the continuous production of powdered, crosslinked polymer compositions absorbing aqueous or serous fluids, as well as blood, comprising:

- a) 55 - 99.9 wt.-% of at least one polymerized, ethylenically unsaturated, polymerizable monomer which contains acid groups neutralized to at least 25 mole-%;
- b) 0 - 40 wt.-% of polymerized, unsaturated monomers copolymerizable with a);
- c) 0.01 - 5.0 wt.-% of one or more crosslinking agents;
- d) 0 - 30 wt.-% of a water soluble polymer, the weight amounts a) through d) being based on anhydrous polymer composition, and the sum of these components always being 100 wt. %, wherein the powdered crosslinked polymer composition is made by continuous polymerization process wherein a parameter of the continuous polymerization

process is varied by increasing and decreasing the parameter in a recurring pattern, during the polymerization process.

14. (Previously Amended) The process according to Claim 13, characterized in that said recurring pattern is an oscillation about a mean value which can be selected at random.

15. (Previously Amended) The process of Claim 13, wherein the oscillation is selected from the group consisting of harmonic or anharmonic.

16. (Withdrawn)

17. (Previously Amended) The process according to Claim 13 characterized in that the polymerization is effected on a moving support.

18. (Previously Amended) The process according to Claim 13 characterized in that the polymer composition is powdered subsequent to drying.

19. (Previously Amended) The process according to Claim 18, characterized in that the powdered polymer product is mixed with 0.05 - 3 wt.-% of a compound capable of reacting with at least two carboxyl groups and heated to 150-250°C.

20. (Previously Amended) An absorbent material for water and aqueous liquids comprising a polymer composition of Claim 1.

21. (Previously Amended) A material comprising an absorbent to absorb body fluids comprising a polymer composition of Claim 1.

22. (Previously Amended) A electroconductive or light conducting cable comprising a polymer composition of Claim 1.

23. (Previously Amended) A foamed sheet material comprising polymer composition of Claim 1.

24. (Previously Amended) A vehicle for fertilizers or other active ingredients released over a prolonged period of time comprising a polymer composition of Claim 1.

25. (New) A powdered, crosslinked polymer composition for absorbing aqueous or serous fluids, as well as blood, comprising:

a) 55 - 99.9 wt.-% of at least one polymerized, ethylenically unsaturated, polymerizable monomer which contains acid groups neutralized to at least 25 mole-%;

b) 0 - 40 wt.-% of polymerized, unsaturated monomers copolymerizable with a);

c) 0.01 - 5.0 wt.-% of a crosslinking agent;

d) 0 - 30 wt.-% of a water-soluble polymer, the weight amounts a) through d) being based on anhydrous polymer composition, and the sum of these components always being 100 wt. %, wherein the powdered crosslinked polymer composition is made by continuous polymerization process wherein at least one parameter of the continuous polymerization process is varied by increasing and decreasing the parameter in a recurring pattern, during the polymerization process, the parameter selected from the group consisting of

the composition of the polymerized, ethylenically unsaturated, polymerizable monomer solution by varying the amount of at least one ethylenically unsaturated monomer,

the concentration of the crosslinking agent,

the pH value of the monomer solution; and

the graft basis by increasing and reducing the amount of graft basis.

26. (New) A process for the continuous production of powdered, crosslinked polymer compositions for absorbing aqueous or serous fluids, as well as blood, comprising:
- a) 55 - 99.9 wt.-% of at least one polymerized, ethylenically unsaturated, polymerizable monomer which contains acid groups neutralized to at least 25 mole-%;
  - b) 0 - 40 wt.-% of polymerized, unsaturated monomers copolymerizable with a);
  - c) 0.01 - 5.0 wt.-% of a crosslinking agent;
  - d) 0 - 30 wt.-% of a water-soluble polymer, the weight amounts a) through d) being based on anhydrous polymer composition, and the sum of these components always being 100 wt. %, the monomer solution being polymerized to form a gel, said gel being dried and crushed, characterized in that at least one parameter of the continuous polymerization process is varied by increasing and decreasing the parameter in a recurring pattern; during the polymerization process, the parameter selected from the group consisting of
    - the composition of the polymerized, ethylenically unsaturated, polymerizable monomer solution by varying the amount of at least one ethylenically unsaturated monomer,
    - the concentration of the crosslinking agent,
    - the pH value of the monomer solution; and
    - the graft basis by increasing and reducing the amount of graft basis.